

# Motorola

## HOME RADIO

### S E R V I C E M A N U A L

MODELS  
**53H1**  
**53H2**  
**53H3**  
**53H4**

CHASSIS  
**HS-337**

#### GENERAL INFORMATION

TYPE - AC-DC table model superheterodyne receiver with loop antenna.

#### RECEIVER MODELS

Model	Cabinet Color
53H1	Ebony
53H2	Gray
53H3	Green
53H4	Red

TUNING RANGE - 535 to 1620 Kc      IF - 455 Kc

TUBE COMPLEMENT - Type	Function
12BE6	Converter
12BA6	IF Amplifier
12AT6	Det, AVC & 1st AF Amp
50C5	Power Amplifier
35W4	Rectifier



POWER SUPPLY - 117 volts AC or DC, 35 watts

#### OPERATING INSTRUCTIONS

**ON-OFF-VOLUME.** The volume control and power switch are combined and operated with the volume knob. **NOTE:** Reverse the line cord plug in the wall outlet if radio does not operate from DC. When operating from AC, reversing the line cord plug in the wall outlet may sometimes improve reception.

**TUNING.** Select stations with the tuning knob.

**ANTENNA.** A built-in loop antenna eliminates the need for an outside antenna in most locations. When receiving a weak station, rotate the receiver slightly for best signal strength. If additional pick-up is necessary, connect an external antenna to the radio by following the instructions printed on the rear panel. **CAUTION:** Never connect the radio chassis to a water pipe, radiator, or other ground.

#### SERVICE NOTES

The chassis of this receiver is isolated from the AC power line circuit by a capacitor to eliminate the shock hazard when handling the receiver. However, as an additional precaution when aligning or servicing the receiver from AC, an isolation transformer should be inserted between the power line and the chassis.

#### TO REMOVE CHASSIS FROM CABINET:

1. Pull off the two radio control knobs.
2. Remove the four screws which hold the loop to the cabi-

net.

3. Remove the screw that holds the interlock to the cabinet.
4. Disconnect speaker leads from speaker.
5. Remove the four screws that hold the chassis to the cabinet.
6. Slide the radio chassis from the cabinet.

#### LIST APPLICABLE BULLETINS & SUPPLEMENTS HERE:

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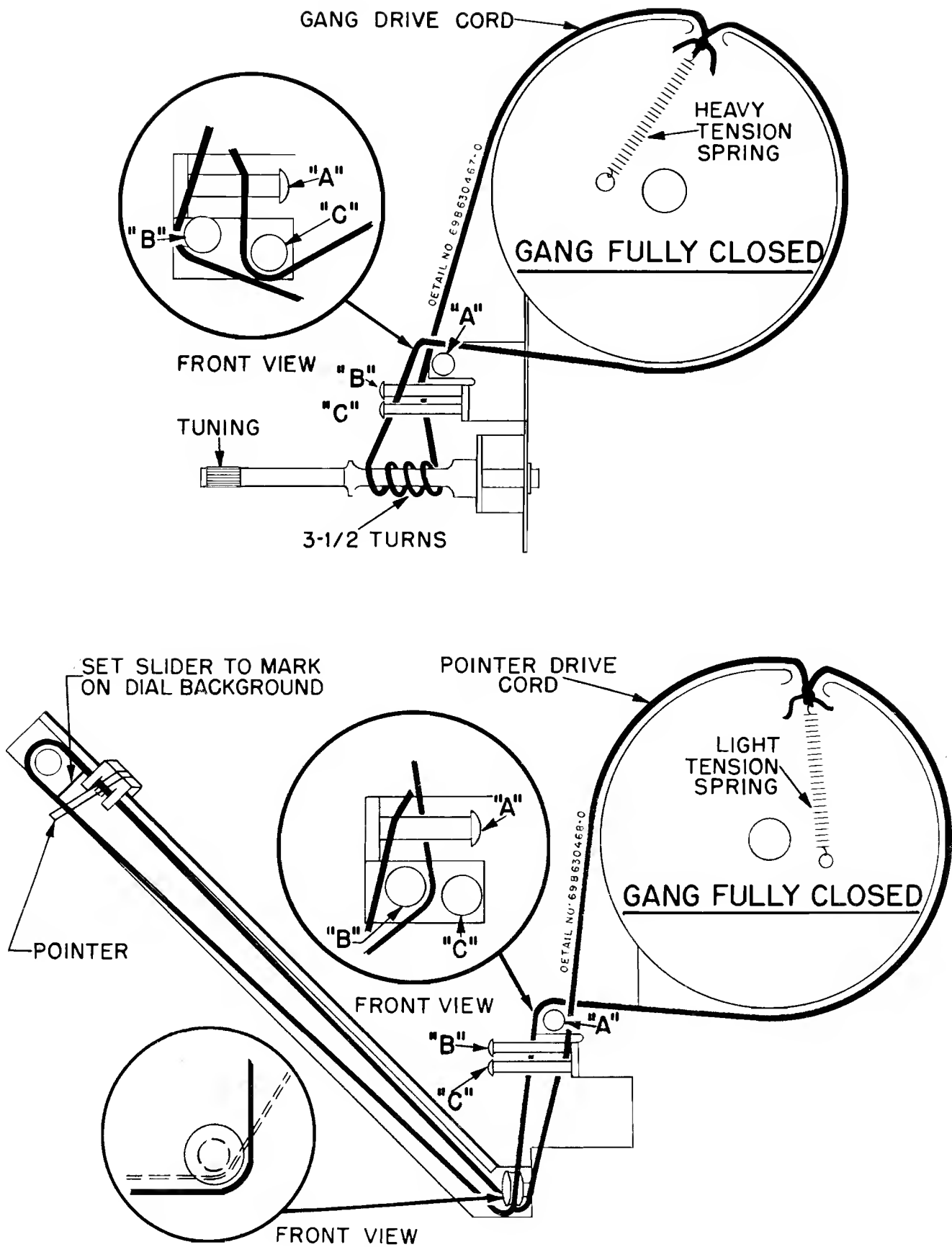


FIGURE 1. DIAL RESTRINGING DETAIL

## ALIGNMENT

NOTE: If AC power is used, it is recommended that an isolation transformer be placed between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to B- through a .1 mf capacitor.

1. Connect a low range output meter across the speaker voice coil.
2. Connect the low side of the signal generator to B-.
3. Set the signal generator for 400 cycle, 30% modulation.

4. Turn the receiver volume control to maximum.

5. Use a small fibre screwdriver for aligning the IF and diode transformers.

6. Adjust the signal generator output to produce .40 volt (.05 watt) across the voice coil. As stages are aligned, reduce the generator output (not receiver volume control) to maintain the .40 volt level to avoid overloading the receiver.

7. See Figure 2 for adjustment locations and the following chart for procedure.

### ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
<b>IF ALIGNMENT</b>						
1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
<b>RF ALIGNMENT</b>						
2.	.1 mf	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully open	5 (Osc)	Adjust for maximum.
3.	-	Radiation loop*	1400 Kc	Tune for max	6 (Ant)	Adjust for maximum.

\*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

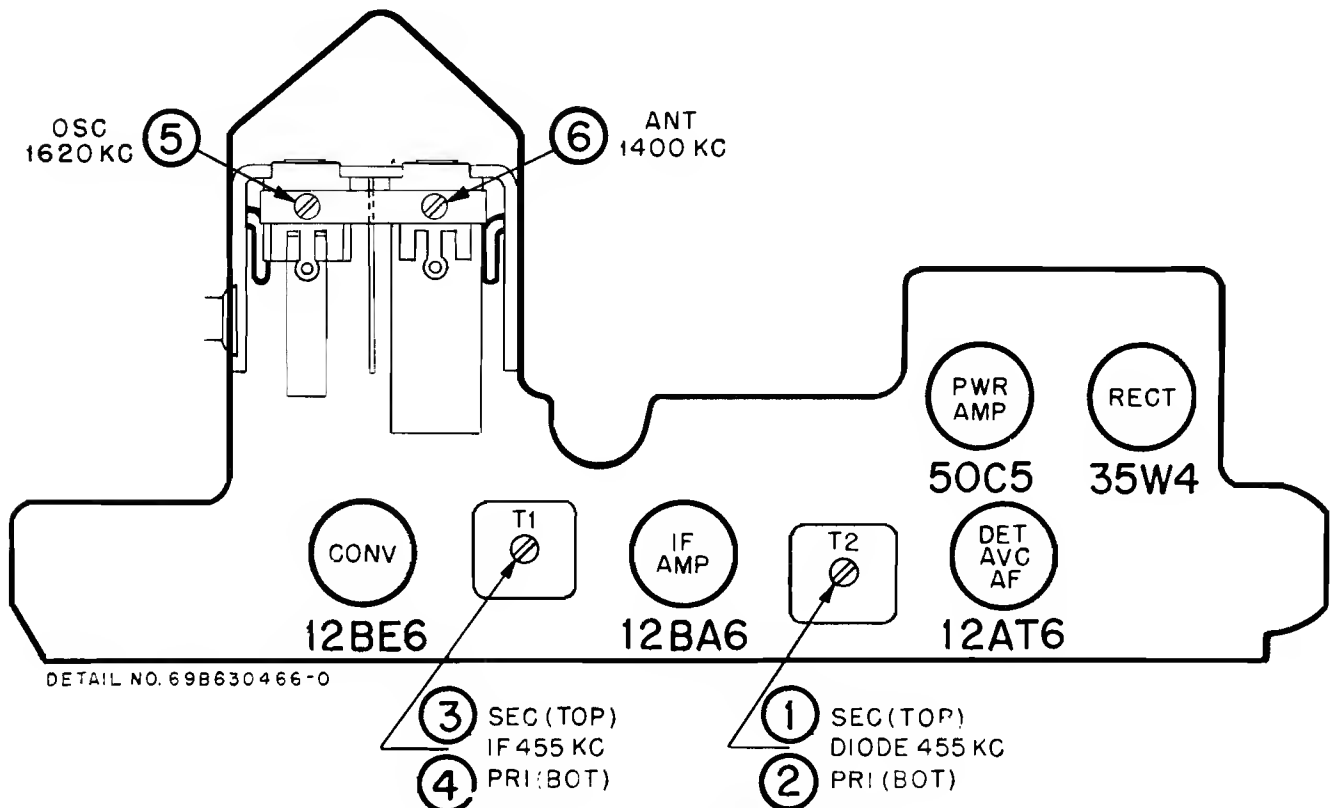


FIGURE 2. TUBE AND TRIMMER LOCATIONS

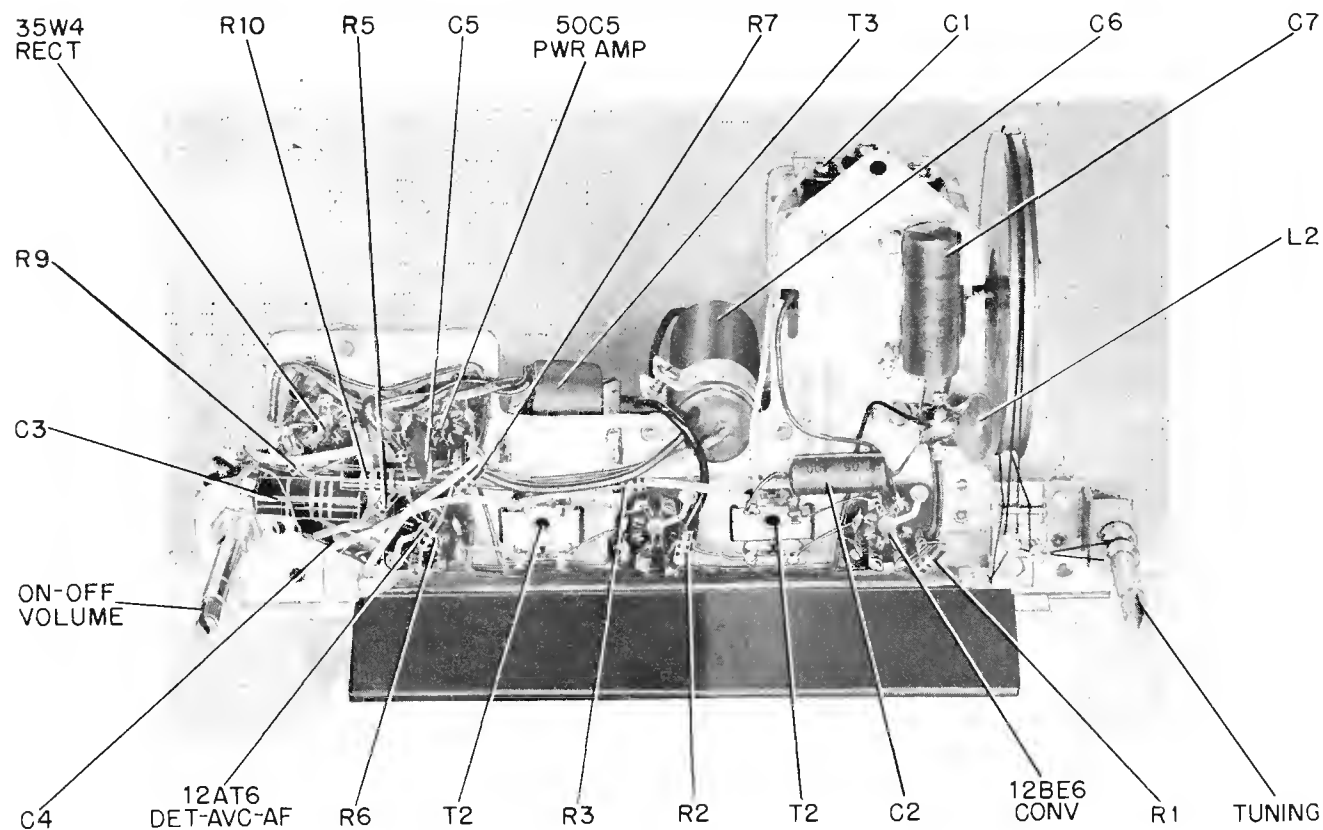
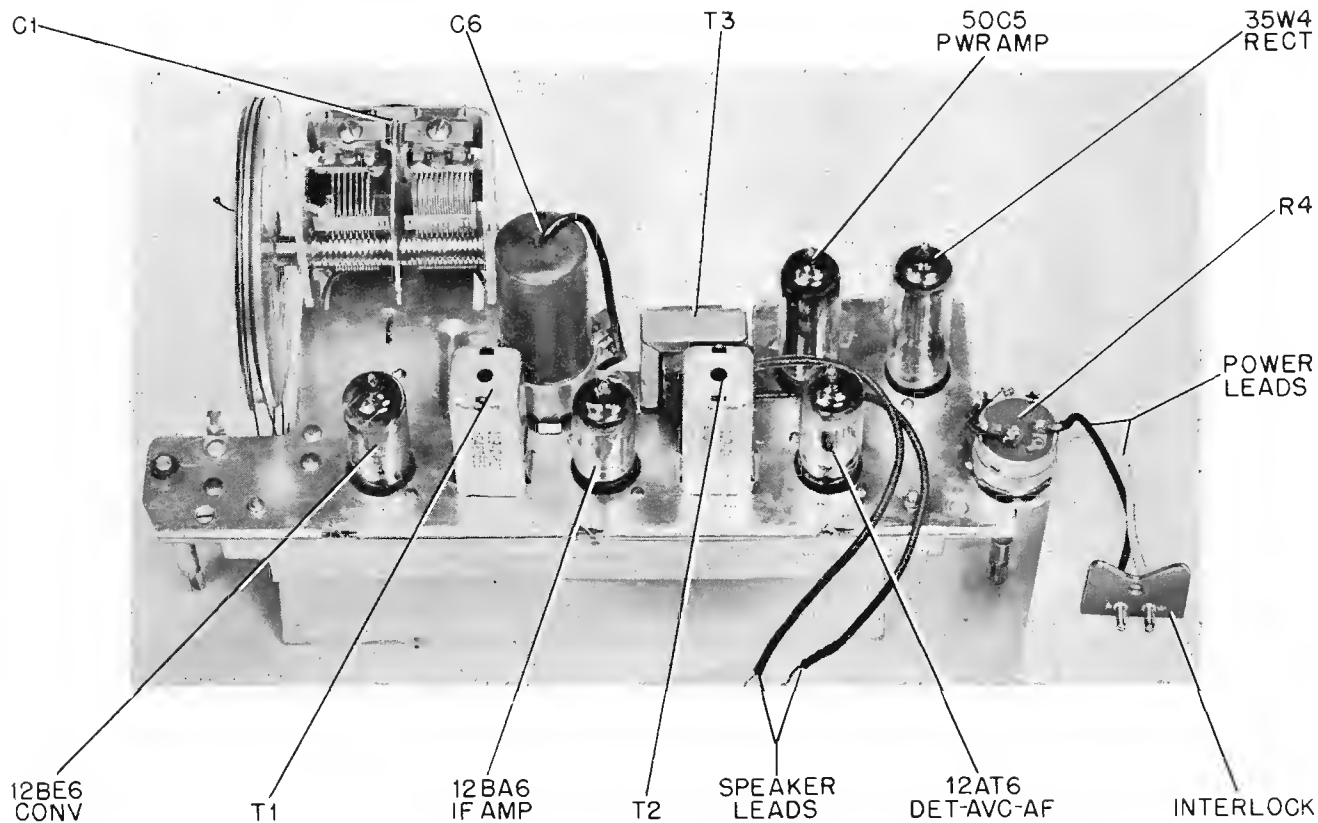


FIGURE 3. PARTS LOCATIONS



## REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	List Price	Part Number	Description	List Price
<b>CHASSIS PARTS - ELECTRICAL</b>				29R3010	Lug, soldering: #6; hot-tinned (gang).....doz	.30
<u>Capacitors</u>				29A620057	Lug, terminal (on speaker leads).....doz	.25
C-1	19B621865	Variable, 2-gang: with pulley	.55	2S7051	Nut, hex palnut: 3/8-32 x 9/16 (volume control mtg).....doz	.15
C-2	8R9821	Paper: .05 mf 200V.....	.25	28A621854	Plug, line cord (interlock).....	.15
C-3	8R490232	Molded paper: 47,000 mmf 400V	.30	52K621861	Pointer, dial: with slider.....	.10
C-4	21B482847	Ceramic, multiple: 2000, 220, 220, 5000 mmf.....	.65	1V621889	Shaft, tuning: with pulley.....	.10
C-5	8R9802	Paper: .02 mf 400V.....	.20	9R119819	Socket, tube: miniature; 7-prong..	.15
C-6	23B610627	Electrolytic: 50-30 mf/150V.	1.35	41A14244	Spring, tension (drive cord)...doz	.55
C-7	8R9843	Paper: .15 mf 200V.....	.20			
<u>Coils</u>						
L-1	24C621880	Antenna Loop and Panel As-sembly.....	1.35			
L-2	24K621754	Oscillator coil.....	.65			
<u>Speaker</u>				<b>CABINET PARTS</b>		
LS-1	50C621882	Speaker: 4" PM; 3.2 ohm VC..	4.70*	16K621729	Cabinet, table model: plastic; ebony; less speaker grille, speaker, and dial scale (53H1)...	4.15
		exch	3.55	16K621731	Cabinet, table model: plastic; gray; less speaker grille, speaker, and dial scale (53H2).....	6.75
<u>Resistors</u>				16K621732	Cabinet, table model: plastic; green; less speaker grille, speaker, and dial scale (53H3)...	6.75
Note: All resistors are insulated carbon type unless otherwise specified.				16K630086	Cabinet, table model: plastic; red; less speaker grille, speaker, and dial scale (53H4).....	6.75
R-1	6R6028	22,000 20% 1/2W.....doz	1.20	30K610638	Cord, line: with plug; 6 ft long..	.95
R-2	6R2039	68 10% 1/2W.....doz	1.20	5S3139	Eyelet: .202 x .475 (line cord mtg).....doz	.15
R-3	6R3927	2.2 meg 20% 1/2W.....doz	1.20	13C622059	Grille, speaker: with medallion; gray (53H1, 53H4).....	1.10
R-4	18K621859	Volume control: 1 meg; includes on-off switch.....	1.20	13K622060	Grille, speaker: with medallion; yellow (53H2).....	1.10
R-5	6R2109	10 meg 20% 1/2W.....doz	1.20	13K622061	Grille, speaker: with medallion; green (53H3).....	1.10
R-6	6R6032	470,000 20% 1/2W.....doz	1.20	36B622096	Knob, control: ebony (53H1).....	.55
R-7	6R6032	470,000 20% 1/2W.....doz	1.20	36K630364	Knob, control: gray (53H2).....	.55
R-8	6R6373	150 10% 1/2W.....doz	1.20	36K622097	Knob, control: green (53H3).....	.55
R-9	6R5683	27 10% 1/2W.....doz	1.20	36K622098	Knob, control: red (53H4).....	.55
R-10	6R6327	1000 10% 1W.....	.20	13C722622	Medallion: on speaker grille.....	.25
<u>Transformers</u>				34C621884	Scale, dial.....	.55
T-1,2	24C485553	IF and Diode Transformer: 455 Kc: complete.....	1.45	3S120195	Screw, thread cutting: #6 x 5/16 acorn head.....doz	.25
T-3	25K621883	Output Transformer.....	1.50	3S115237	Screw, thread cutting: #6 x 5/16 pl hex head; cad pl (speaker and chassis mtg).....doz	.40
				3S115237	Screw, thread-cutting: #6 x 5/16 pl hex head; cad pl (speaker and chassis mtg).....doz	.40
				2S7092	Speednut: .125 rnd (dial scale mtg).....doz	.15
<u>Part Number Description List Price</u>						
<b>CHASSIS PARTS- MECHANICAL</b>						
7B621873	Background, dial.....		.35			
1V621888	Bracket, slider: with rivets.....		.30			
42A51461	Clamp, capacitor mtg.....		.10			
42A485548	Clip, IF transformer mtg.....doz		.35			
5A19658	Eyelet, spacer (gang mtg).....doz		.20			
5A70404	Grommet, gang mtg: rubber.....		.05			

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

\*Plus Federal Excise Tax At Current Rate